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Inventors (please provide full names): _____

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For Sequence Searches Only Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

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=~ s "p34 human acrosomal sperm protein"
3 FILES SEARCHED...
L1 0 "P34 HUMAN ACROSOMAL SPERM PROTEIN"

=~ s acrosomal sperm protein
L1 20 ACROSOMAL SPERM PROTEIN

=~ s l1 and human
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nested terms that are not separated by a logical operator.

=~ s l2 and human
3 FILES SEARCHED...
L2 6 L2 AND HUMAN

=~ s l3 and p34
L4 1 L3 AND P34

=~ d 14 chib abs

L4 ANSWER 1 OF 1 CAPLUS COPYRIGHT 2002 ACS
1993:746171 Document No. 131:347079 **Acrosomal sperm**
protein P34H antigenic fragments and use in immuncontraception
and as a marker of fertility. Sullivan, Robert; Berube, Bruno; Legare,
Christine; Gaudreault, Christian (Immucon Inc., Can.). U.S. US 5989549 A
19931123, 19 pp. (English). CODEN: USXXAM. APPLICATION: US 1993-90567
19930630.

AB The present invention relates to the use of **acrosomal**
sperm protein in immuncontraception of male and female
subjects and uses thereof as a marker for fertility. The method of
immuncontraception comprises administering to said male or female subject
an antigenic fragment of **human acrosomal sperm**
protein P34. Preferred antigenic fragment includes,
without limitation, MELFLASRERC or CSQDYAEPNPTWQV. An immunocontraceptive
vaccine for male or a female subject is also claimed.

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PROCESSING COMPLETED FOR L3

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? DUP REMOVE L3 (5 DUPLICATES REMOVED)

=> d 15 1-3 cbib abs

LS ANSWER 1 OF 2 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.DUPLICATE 1
2000:232338 Document Nr.: PREV300023398. **Acrosomal sperm**
protein and uses thereof. Sullivan, Eckert (1); Berube, Frunc;
Legare, Christin-; Gaudreault, Christian. (1) Quebec Canada. ASSIGNEE:
Immuon Inc., Montreal, Canada. Patent Info.: US 5989543 November 23,
1999. Official Gazette of the United States Patent and Trademark Office
Patents, (Nov. 23, 1999) Vol. 112, No. 4, pp. No pagination. e-file.
ISSN: 0098-1133. Language: English.

AB The present invention relates to the use of **acrosomal**
sperm protein in immuncontraception of male and female
subjects and uses thereof as a marker for fertility.

LS ANSWER 2 OF 2 MEDLINE DUPLICATE 2
1998034034 Document Number: 98034034. PubMed ID: 963161. Cerviductal
antibody response to a defined recombinant sperm antigen in macaques. Kurth
B E; Weston C; Reddi P B; Bryant D; Bhattacharya R; Flickinger C J; Herr J
C. (Center for Recombinant Contraceptive Vaccinogens, Department of
Cell Biology, The University of Virginia, Charlottesville 22908, USA.)
BIOLOGY OF REPRODUCTION, (1997 Nov 57 (5) 181-9. Journal code: 0207224.
ISSN: 0883-7686. Pub. country: United States. Language: English.

AB Macaque cerviductal fluids were assayed for specific antibodies to the
intra-acrosomal sperm protein SP-10 after
immunizations with recombinant macaque SP-10 (re-mqSP-10), a candidate
contraceptive vaccinogen. Access ports, consisting of a subcutaneous
collecting reservoir and a catheter to cannulate the cerviduct, were
implanted into monkeys for repeated aspiration of cerviductal fluid. Monkeys
were inoculated i.m. once a month with an emulsion consisting of 2 mg
re-mqSP-10 in a vehicle of squalene andmannin mannoside. Cerviductal
fluids and serum were collected during the periovulatory period for six
menstrual cycles, and IgG and IgA antigen-specific antibodies in preimmune
and immune fluids were compared by ELISA. Both relative and absolute
concentrations of SP-10-specific immunoglobulins (Ig) were determined.
Cerviductal fluids from immunized animals showed significant increases in
anti-SP-10 IgG at cycle 2 and at all subsequent intervals. Anti-SP-10 IgA
significantly increased in cerviductal fluid at cycles 4, 5, and 6. Serum
anti-SP-10 IgG increased at cycle 2 and remained significantly elevated
through cycle 6, while serum anti-SP-10 IgA was higher than in preimmune
samples at cycle 4. Serum antibodies generated to the recombinant SP-10
recognized SP-10 extracted from macaque sperm in Western blots.
Immunocytochemical staining of macaque and **human** sperm showed
acrosomal immunofluorescence with both immune cerviductal fluids and serum
using both anti-IgG and anti-IgA secondary antibodies. This study
demonstrates for the first time 1) IgG and IgA antibodies to a defined
recombinant sperm-specific antigen in primate cerviductal fluids after
systemic immunization and 2) the recognition by primate cerviductal fluid
IgG and IgA of the endogenous contraceptive target in both **human**
and macaque sperm.

LS ANSWER 3 OF 2 SCISEARCH COPYRIGHT 2002 ISI (R)
97:743927 The Genuine Article (R Number: X3617. Monoclonal antibodies to
canine intra-acrosomal sperm proteins
recognizing acrosomal status during capacitation and acrosome reaction.
Geussova G; Peknicova J (Reprint); Cakova J; Kalak P; Moos J;
Philimonenko V V; Hizak P. ACAD SCI CZECH REPUBL, INST MOL GENET, LAB BIOL
& BIOCHEM FERTILITAT, VIDENSKA 1983, CR-14220 PRAGUE, CZECH REPUBLIC
(Reprint); ACAD SCI CZECH REPUBL, INST MOL GENET, LAB BIOL & BIOCHEM
FERTILITAT, CR-14220 PRAGUE, CZECH REPUBLIC; ACAD SCI CZECH REPUBL, INST
ANIM PHYSIOL & GENET, DEPT GENET, CR-27721 LIECHOM, CZECH REPUBLIC; ACAD
SCI CZECH REPUBL, INST EXPT MED, DEPT CELL ULTRASTRUCT & MOL BICL,

CR-14220 PRAGUE, CZECH REPUBLIC. ANDROLOGIA (SEP-OCT 1997) Vol. 29, No. 5, pp. 561-566. Publisher: BLACKWELL WISSENSCHAFTS-VERLAG GMBH. KURFURSTENDAM M 57, D-10707 BERLIN, GERMANY. ISSN: 0303-4569. Pub. country: CZECH REPUBLIC. Language: English.

ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

AB

Monoclonal antibodies Ds-1 and Ds-2 specifically labelling dog sperm acrosome were prepared by immunization of mice with acetic acid extracts of dog spermatozoa. Electron microscopy and indirect immunofluorescence localized the site of Ds-1 and Ds-2 proteins inside the acrosomal vesicle. Ds-1 antibody detected 55, 70, 110, 120 and 130 kDa proteins under nonreducing conditions, and 73 kDa and 54 kDa proteins after reduction (p73 Ds-1 and p54 Ds-1). 90 kDa and 40 kDa proteins recognized by Ds-2 (p92 Ds-2 and p40 Ds-2) migrated at > 200 kDa in the absence of reducing agent. In vivo, p73 Ds-1 and p54 Ds-1 are therefore likely to be present both in free and complexed form, while all of p92 Ds-2 and p40 Ds-2 form disulfide-linked complexes. Decrease in the rate of acrosomes stained with Ds-1 and Ds-2 was correlated with the progress of capacitation resulting in the increased rate of spontaneous acrosome reactions, as suggested by a dramatic effect of A23187. Monoclonal antibody to boar acrosin (ACR-2) recognized dog sperm acrosin homologue. A higher rate of ACR-2-negative spermatozoa was observed after capacitation and A23187 treatment compared to Ds-1 and Ds-2, indicating that proteins recognized by Ds-1 and Ds-2 are localized in a specific compartment of acrosome, distinct from acrosin and possibly representing fraction of acrosomal matrix.

=: s "MELFLAGMVL"
L6 : "MELFLAGMVL"

=: s "CHIAKTMILNEI"
L7 : "CHIAKTMILNEI"

=: s immunocontraception
L8 : IMMUNOCONTRACEPTION

=: s 18 and acrosomal protein
L9 : 18 AND ACROSOMAL PROTEIN

=: dup remove 19
PROCESSING COMPLETED FOR L9
L10 : DUP REMOVE L9 (5 DUPLICATES REMOVED)

=: d 110 1-2 filk abs

L10 ANSWER 1 OF 2 EMBASE COPYRIGHT 2002 ELSEVIER SCI. B.V. DUPLICATE 1
2001324319 EMBASE Differential extraction and enrichment of human sperm surface proteins in a proteome: Identification of immunocontraceptive candidates. Shetty J.; Diekman A.B.; Jayes F.C.L.; Sherman N.E.; Naaby-Hansen S.; Flickinger C.J.; Herr J.B. Dr. J.C. Herr, Department of Cell Biology, University of Virginia, Charlottesville, VA 22908-0732, United States. jch3k@virginia.edu. Electrophoresis 22/14 (3159-3066) 2001.

Refs: 43.

ISSN: 0173-4633. CODEN: ELCDDN. Pub. Country: Germany. Language: English. Summary language: English.

AB

The objective of this study was to discover previously unknown human sperm surface proteins that may be candidate contraceptive vaccines. To this end, methods of concentrating human sperm proteins for microsequencing by mass spectrometry were used, which increased the likelihood of identifying surface proteins. Vectorial labeling, differential extraction and two-dimensional (2-D) gel electrophoresis were employed to identify and isolate proteins accessible at the cell surface. Percoll harvested or swim-up sperm were either solubilized directly or solubilized after

surface labeling with sulfo-succinimidyl-6-(biotinamido)hexanoate (sulfo-NHS-LC-biotin). Comparisons were made of proteins extracted with four lysis buffers: (i) Celis buffer containing 9.5 M urea and 1% Igepal CA-630; (ii) 1% Triton X (TX)-100; (iii) 1.7% TX-114 followed by phase partitioning; or (iv) 1 M NaCl. Blots of proteins separated by high-resolution 2-D electrophoresis were probed with avidin and antibodies to known proteins specific for three domains: the sperm surface (SAGA-1), the acrosome (SP-10), and the cytoskeleton (alpha-tubulin). Celis buffer (45 min) extracted proteins from all three major compartments. However, a 30-s extraction in Celis buffer enriched for several proteins and enabled the identification of several novel peptides by mass spectrometry. Mild extraction with TX-100 or 1 M NaCl solubilized mainly membrane and **acrosomal proteins**, but not cytoskeletal proteins.

Comparison of biotinylated proteins extracted by each method showed that the major vectorially labeled proteins solubilized by Celis buffer were also solubilized by TX-100, TX-114, and 1 M NaCl. Extraction with TX-114 followed by phase-partitioning significantly enriched hydrophobic surface proteins and aided resolution and isolation. Eight protein spots microsequenced following all these extraction methods proved to be novel sperm molecules.

L10 ANSWER 2 OF 2 MEDLINE
93392979 Document Number: 93392979. PubMed ID: 8179586. Stage-specific detection of mRNA for the sperm antigen SP-10 in human testes. Kurth B E; Wright R M; Flickinger C J; Herr J C. (Department of Anatomy and Cell Biology, University of Virginia, Charlottesville 22908.) ANATOMICAL RECORD, (1993 Aug) 236 (4) 419-425. Journal code: 0370540. ISSN: 0003-276X. Pub. country: United States. Language: English.

AB SP-10 is a sperm-specific, **intra-acrosomal protein** that is considered to be a vaccine candidate for **immunocontraception**. In the present study, *in situ* hybridization with biotin and ³⁵S-labeled riboprobes was used to determine the pattern of SP-10 mRNA expression in human testes. Both methods demonstrated SP-10 mRNA primarily in round spermatids found in stages I, II, and III of the seminiferous cycle. Morphometric analysis of silver grains with the ³⁵S-labeled probe showed less SP-10 mRNA in spermatids at stages IV, V, and VI than in previous stages, and rarely was label found in spermatogonia or spermatocytes. The expression of SP-10 mRNA first appeared at stage I coincident with the appearance of the protein, which was shown previously to persist in the acrosomal matrix throughout spermatogenesis. The decrease in SP-10 mRNA occurred when spermatids underwent polarization, nuclear condensation, and elongation. The appearance of SP-10 mRNA in round spermatids suggests that increases in SP-10 transcription or SP-10 mRNA stability or both occur as spermatids develop from the Golgi phase to the cap phase. The subsequent decline of SP-10 mRNA, despite the persistence of the SP-10 protein in all spermatids, suggests that a decrease in SP-10 transcription or an increase in mRNA degradation occurs when spermatids elongate.

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FILE 'MEDLINE, EMBASE, BIOSIS, SCISEARCH, CAPLUS' ENTERED AT 15:05:39 ON 16 JUL 2002

L1 0 \$ "P34 HUMAN ACROSOMAL SPERM PROTEIN"
L2 20 \$ ACROSOMAL SPERM PROTEIN
L3 8 \$ L: ANI HUMAN
L4 1 \$ L: ANI P34
L5 3 DUP REMOVE L6 (5 DUPLICATES REMOVED)
L6 0 \$ "MELFLAGERVI"
L7 0 \$ "CHKAKTMLNRI"

L8 336 S IMMUNOCONTRACEPTION
L9 3 S L8 AND ACROSOMAL PROTEIN
L10 2 DUP REMOVE L8 (2 DUPLICATES REMOVED)

=> s 18 and "P34"
L11 1 L8 AND "P34"

=> d 111 cbib abr

L11 ANSWER 1 OF 1 MEDLINE COPYRIGHT 2002 ATS
1999:748171 Document No. 181:147079 Acrosomal sperm protein P34H antigenic fragments and use in **immunocontraception** and as a marker of fertility. Sullivan, Robert; Berube, Brune; Legare, Christine; Saudeault, Christian (Immucon Inc., Can.). U.S. US 5989549 A 19991123, 19 pp. (English). CODEN: USXXAM. APPLICATION: US 1999-90567 19980608.

AB The present invention relates to the use of acrosomal sperm protein in **immunocontraception** of male and female subjects and uses thereof as a marker for fertility. The method of **immunocontraception** comprises administering to said male or female subject an antigenic fragment of human acrosomal sperm protein **P34**. Preferred antigenic fragment includes, without limitation, MELFLAGRVC OR CSQDIAEPPNETWQV. An immuncontraceptive vaccine for male or a female subject is also claimed.

=> s (sullivan r1/au or berube b7/au or legare c7/au)
L12 298 (SULLIVAN R1/AU OR BERUBE B7/AU OR LEGARE C7/AU)

=> s 112 and acrosomal protein
L13 6 L12 AND ACROSOMAL PROTEIN

=> s 113 and "P34"
L14 6 L13 AND "P34"

=> s 113 and immunocontraception
L15 6 L13 AND IMMUNOCONTRACEPTION

=> s 113 and immunocontraception
L16 6 L13 AND IMMUNOCONTRACEPTION

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PROCESSING COMPLETED FOR L16
L17 3 DUP REMOVE L16 (3 DUPLICATES REMOVED)

=> d 117 1-3 cbib abr

L17 ANSWER 1 OF 3 MEDLINE DUPLICATE 1
200210314 Document Number: 21c57069. PubMed ID: 11866698. Effect of immunization of hamsters against recombinant P26h on fertility rates. Saudeault C; Montfert L; **Sullivan R.** (Centre de Recherche en Biologie de la Reproduction and Département d'Obstétrique-Gynécologie, Faculté de Médecine, Université Laval, 2715 Blvd. Laurier, Ste-Foy, QC G1V 4G1, Canada.) Reproduction, (2002 Feb) 123 (2) 307-13. Journal code: 10936698. ISSN: 1479-1626. Pub. country: England: United Kingdom. Language: English.

AB Despite the various contraceptive methods available, an effective and inexpensive method remains to be established. **Immunocontraception** may help to achieve this goal. P26h has been proposed as a candidate for the development of a male contraceptive vaccine. P26h, a hamster sperm protein, interacts with the zona pellucida. Furthermore, in vivo fertilization can be blocked completely by active immunization of male hamsters against P26h. Major binding protein (MBP)-P26 shares antigenic determinants with the native P26h present on cauda epididymal spermatozoa.

The aim of the present study was to reproduce the immunocontraceptive properties of native P26h by immunizing male hamsters against a recombinant P26h fused with a maltose binding protein (MBP). Active immunization of male hamsters with the MBP-P26h showed that specific anti-P26h circulating IgGs could be generated. Mating of immunized male hamsters with superovulated females resulted in a significant decrease, 20-25%, in the fertilization rate. This result is in agreement with results from *in vitro* sperm-zona pellucida binding assays. Indeed, the anti-recombinant P26h IgGs showed lower inhibitory properties when compared with anti-native P26h IgG. Despite the high anti-P26h IgG titres generated in hamsters, histological studies showed that active immunization has no pathological sequelae to the reproductive tissues. The potential of P26h as a candidate for a contraceptive vaccine is discussed.

L17 ANSWER 2 OF 3 BIOSIS COPYRIGHT 2001 BIOLOGICAL ABSTRACTS INC. DUPLICATE 2
2000:293398 Document No.: PREV160000293398. Acrosomal sperm protein and uses
thereof. **Sullivan, Robert (1); Berube, Bruno;**

Legare, Christine; Gaudreault, Christian. (1) Quebec Canada.
ASSIGNEE: Immunon Inc., Montreal, Canada. Patent Info.: US 5969543
November 23, 1999. Official Gazette of the United States Patent and
Trademark Office Patents, Nov. 23, 1999 Vol. 122, No. 4, pp. No
paginatin. e file. ISSN: 0365-1155. Language: English.

AB The present invention relates to the use of acrosomal sperm protein in
immunocontraception of male and female subjects and uses thereof
as a marker for fertility.

L17 ANSWER 3 OF 3 EMBASE COPYRIGHT 2001 ELSEVIER SCI. B.V.
96042034 EMBASE Document No.: 1996042034. [Epididymal proteins as targets for
contraception in men and women]. LES PROTEINES EPIDIDYMAIRES EN TANT QUE
CIBLES POUR UNE CONTRACEPTION MASCULINE ET FEMININE. Baue F.;
Sullivan R. Unite d'Ontogenie Reproduction, Centre de Recherche,
Universite Laval, 2705, Bd Laurier, Ste Foy, Que. G1V 4G1, Canada.
References en Gynecologie Obstetrique 27 (258-265) 1995.
ISSN: 1244-3168. CODEN: EGOOER. Luk. Country: France. Language: French.
Summary Language: English; French.

AB Epididymal functions consist in sperm storage and transport from testis to ejaculatory duct. During the epididymal transit, spermatozoa acquire their forward motility and fertilizing ability. The epithelium bordering the epididymal lumen is characterized by high absorption and secretory activities. Secreted proteins modify the epididymal fluid composition and are involved in sperm surface modifications that occurs during epididymal maturation. Some specific human epididymal proteins have been described but their function remains often unknown. FLB1 and P34H are two proteins added to spermatozoa during the epididymal transit in human. These proteins have been shown to be involved in the acquisition by the male gamete of its fertilizing ability. These proteins could thus be considered as markers of epididymal function in sperm maturation. Many sperm antigens have been proposed as targets for **immunocontraception**. LDH-C4, SP-10, MSA-63, FA-1, PH-20 and P16h are sperm proteins that have been successfully used to induce an immunological infertility in different animals species. Except P16h, these sperm antigens appear during spermatogenesis within seminiferous tubules. Thus, to be considered as an ideal target for **immunocontraception** in men and women, it is proposed that a sperm antigen should be added to the sperm surface during the epididymal transit. Furthermore, it should be unique to the male gamete and involved in one of the key events leading to fertilization. Considering their origin, localization and function, the two human sperm antigens, FLB1 and P34H, represents good candidates for the development of **immunocontraception**.

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L10	(robert)adj(sullivan) (christian)adj(gaudreault)	1	L10
L9	L8 and acrosomal protein	123712	L9
L8	(sullivan)adj(robert)	762	L8
L7	(robert)adj(sullivan)	1	L7
L6	5989549.pn.	1	L6
L5	(robert)adj(sullivan)same(bruno)adj(berube)same(christine)adj(legare)	0	L5
L4	(acrosomal)adj(protein)	13	L4
L3	(acrosomal)adj(protein)same(MKLNFSXLRLVTGAKGIG)	0	L3
L2	(acrosomal)adj(protein)same(p34)same(p26)	0	L2
L1	(vaccine)same(contraceptive)same(acrosomal)adj(protein)	5	L1

END OF SEARCH HISTORY